

REMARKS

Claims 1, 2, 4 and 5 remain in the case.

Reconsideration of this Application is requested. No new matter has been entered.

REJECTIONS UNDER 35 U.S.C. § 103, FIRST PARAGRAPH

The Examiner has rejected claims 1, 2, 4 and 5 as being unpatentable over US patent no. 5,983,778 to **Dawson** in view of US patent no. 3,508,773 to **Coberly**, under 35 U.S.C. § 103, first paragraph.

The Applicants respectfully traverse the rejection as follows.

Dawson describes a telescopic hoist comprising a series of tubular sections (12, 14, 16, 18, 20, 22), open on both sides, each comprising:

- a piston (54, 56, 58, 60, 62) acting as a stopper (see column 3, lines 9-11), and provided with a lower hydraulic seal (34/44, 36/46, 38/48, 40/50 and 42/52) (see column 3, lines 5 –8); and

- an upper spacer (64, 66, 68, 70 and 72), retained by a respective locking screw (104, 106, 108, 110, 112) at the upper end respectively of each tubular section (12, 14, 16, 18, 20, 22) (see column 3, lines 13-16), each upper spacer being provided with an air breather (94, 96, 98, 100 and 102) respectively, for air aspiration in and pushing out, protected by a wiper (74, 76, 78, 80 and 82 respectively).

The air breathers (94, 96, 98, 100 and 102) each respectively communicate with an air space (12a, 14a, 16a, 18a and 20a) defined between a piston and an upper spacer so that upon extension of the tubular sections, air is forced out of a spiral groove provided in the interior surface of the upper spacer and through the respective air breather (94, 96, 98, 100 and 102). Reversely, as each hydraulic stage (12, 14, 16, 18,

20, 22) is retracted, the volume of the air spaces increases as air is drawn through the air breathers (94, 96, 98, 100 or 102) and into the air spaces (12a, 14a, 161, 18a and 20a) through the spiral channel of the upper spacer (see column 3 lines 30-44).

Applicants submit that this arrangement provides that air may be prevented from being drawn through the wipers (74, 76, 78, 80 and 82), which are fixed to each of the upper portions of upper stoppers (64, 66, 68, 70 and 72), as long as the air breathers remain clean. However, as will be apparent to people in the art, as soon as these air breathers get filled with contaminants, this arrangement is no longer effective and air is pushed and aspirated through the wipers (74, 76, 78, 80 and 82). As explained in column 3, lines 43-45, in this event, "the wipers then tend to suck particulate material into the bearing and scratch or mark the outer surface of the adjacent tube stage".

Moreover, as will be apparent to people in the art, since the tubular sections and pistons are in aluminium, a second material, such as a composite, is needed at the sliding contacts, especially for the bearings 34, 36, 38, 40, 42, since interfaces aluminium/aluminium are known as being inadequate.

It is further to be noted that **Dawson** teaches away from welding, and therefore against closed sliding tubular sections (see column 4, lines 8-10).

In the present application, the telescopic hoist of the present invention is described and illustrated as comprising an outermost tubular section (14), inner sections (16, 18, 20) and an innermost tubular section (22), received in a tubular housing (12), for clarity purpose only. The system has a fluid side, with a hydraulic fluid inlet 28, opposite a side open to air, each tubular sections being closed by a head (30, 34, 36 respectively), openings (32, 36) in the heads (30, 34 respectively) of the inner sections (16 and 18) allowing passage in and out of the hydraulic fluid, from the fluid inlet (28) in the outermost section (14).

Each tubular section comprises a piston (53, 57, 61), and a U-shaped cup bore seal (42, 46, 50 respectively), acting as a spacer between successive tubular

section (14 and 16, 16 and 18, and 18 and 20 respectively) and providing wall sealing the hydraulic fluid on the fluid side of the telescopic hoist, opposite the side open to air.

The pistons (53, 57, 61) slide between tubular sections (14 and 16, 16 and 18 and 18 and 20). Nitrided steel is selected, which allows an adequate steel/steel interface, and formation of a film of fluid at the interface between pistons (53, 57 and 61) and tubular sections (14 and 16, 16 and 18 and 18 and 20 respectively), further ensure a lubricated contact (see paragraph 0020).

Therefore, **Dawson** teaches an open hoist using upper spacers separating two successive open tubular sections and provided with local air breathers protected by wipers. Moreover, **Dawson** fails to teach a lubricated sliding contact of the pistons between tubular sections

In contrast, the present invention teaches a hoist using spacers such as U-shaped cup bore seals that provide sealing between the fluid side and the air side, thereby preventing contaminants from entering the hoist. Moreover, this arrangement together with the choice of material allows a lubricated contact between the pistons and the tubular sections.

In the field of telescopic hoists, it has been generally sought to use steel, for reasons of cost and resistance to wear (contrary to aluminium for example). First combinations involved sliding contacts between steel and bronze. When using aluminium, as Dawson teaches, the sliding contacts require a second material, such as a composite as discussed hereinabove. The present invention provides using steel only, by selecting nitrided steel.

Dawson fails to teach the hoist as now recited in amended claim 1.

Neither **Dawson** nor **Coberly** discusses providing formation of a film of a lubricating fluid on the sliding walls of telescopically arranged and moving tubular sections in an open system.

Forming the hoist of **Dawson** out of nitrided steel could not lead to the hoist as now recited in amended claim 1.

Notwithstanding the disclosure of **Coberly** mentioning nitrided steel, even though nitrided steel might have been known to one skilled in the art for its characteristics, it is respectfully submitted that the teachings of **Dawson** could not lead one skilled in the art to the cylinder structure as recited in the present claims.

In view of the above and foregoing, it is respectfully requested that the Examiner withdraw her rejection of claims 1, 2, 4 and 5 under 35 U.S.C. § 103, first paragraph.

The rejections of the claims are believed to have been overcome by the present remarks. From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order, and such an action is earnestly solicited. An extension of time of two months to respond is requested.

Respectfully submitted,

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